Volunteer Lake Assessment Program Individual Lake Reports

GILMORE POND, JAFFREY, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	299	**Max. Depth (m):**	13.1	**Flushing Rate (yr^{-1}):**	0.4
Surface Area (Ac.):	115	**Mean Depth (m):**	3.7	**P Retention Coef:**	0.86
Shore Length (m):	4,000	**Volume (m^3):**	1,736,500	**Elevation (ft):**	1052

TROPHIC CLASSIFICATION

Year	Trophic class
2001	OLIGOTROPHIC
2006	OLIGOTROPHIC

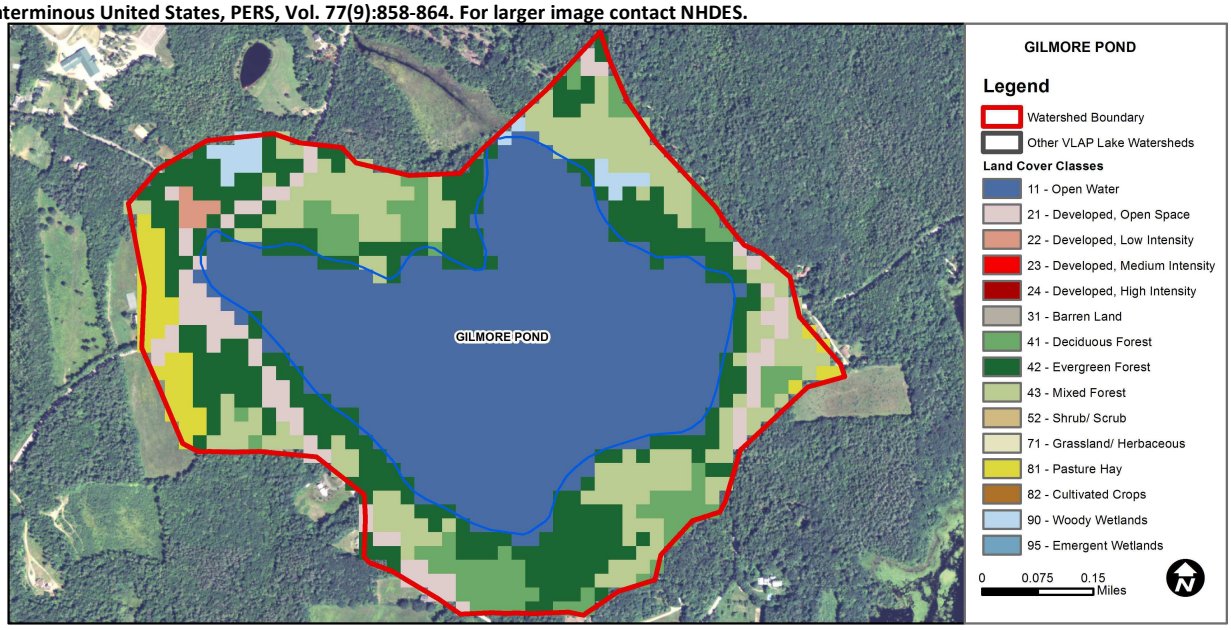
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator and the chlorophyll a indicator is okay.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Oxygen, Dissolved	Very Good	There are a total of at least 10 samples with 0 exceedances of criteria.
	Dissolved oxygen satura	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Chlorophyll-a	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator.
Primary Contact Recreation	Escherichia coli	Very Good	Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria.
	Chlorophyll-a	Very Good	There are a total of at least 10 samples with 0 exceedances of indicator.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	44.4	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	5.88	Deciduous Forest	7.22	Pasture Hay	3.14
Developed-Low Intensity	0.47	Evergreen Forest	21.8	Cultivated Crops	0
Developed-Medium Intensity	0	Mixed Forest	15.92	Woody Wetlands	1.41
Developed-High Intensity	0	Shrub-Scrub	0	Emergent Wetlands	0

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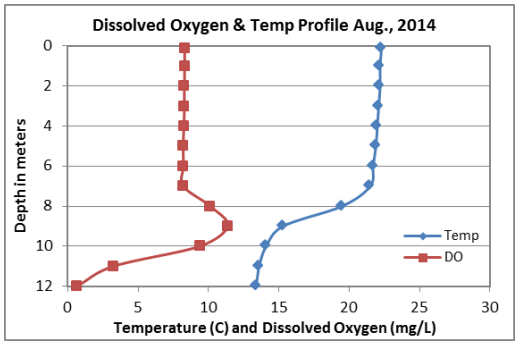
Gilmore Pond, Jaffrey

2014 Data Summary

Observations and Recommendations (*Refer to Table 1 and Historical Deep Spot Data Graphics)*

- **Chlorophyll-a:** Chlorophyll levels increased slightly from June to August, remained low and less than the state median in 2014. Historical trend analysis indicates relatively stable chlorophyll levels with moderate variability between years.
- **Conductivity/Chloride:** Deep spot conductivity and chloride levels remained elevated and greater than the state medians. Historical trend analysis indicates significantly increasing (worsening) epilimnetic (upper water layer) conductivity since monitoring began. Outlet conductivity has also increased since monitoring began.
- **Total Phosphorus:** Epilimnetic and Metalimnetic (middle water layer) phosphorus levels were low in June and then increased to slightly elevated levels in July and August. Although average epilimnetic phosphorus levels remain less than the state median, they have increased in recent years. Historical trend analysis indicates relatively stable epilimnetic phosphorus with moderate variability between years. Hypolimnetic (lower water layer) phosphorus levels were low in June and July and elevated in August likely due to the release of phosphorus from bottom sediments as the summer progressed and dissolved oxygen levels were depleted in the hypolimnion. Outlet phosphorus levels were low in June and July and elevated in August following a significant storm event.
- **Transparency:** Transparency remained good on each sampling event and was much better than the state median. Historical trend analysis indicates stable transparency since monitoring began.
- **Turbidity:** Epilimnetic turbidity was low, Metalimnetic turbidity was slightly higher in August likely indicating a layer of algae, and Hypolimnetic turbidity increased as the summer progressed likely due to the accumulation of organic compounds as dissolved oxygen levels were depleted. Outlet turbidity was slightly elevated in August following a significant storm event.
- **pH:** Epilimnetic and Metalimentic pH levels were within the desirable range 6.5-8.0 units, however historical eplimnetic pH has been less than desirable. Historical trend analysis indicates relatively stable epilimnetic pH with moderate variability between years. Outlet pH levels were less than desirable likely due to wetland impacts.
- **Recommended Actions:** Keep working with local road managers to try and reduce the impacts of winter road salting activities on conductivity and chloride levels. Epilimnetic phosphorus levels have increased in recent years. The increased frequency and intensity of storm events highlights the importance of managing stormwater runoff from lake and watershed properties. DES' "NH Homeowner's Guide to Stormwater Management" is a great resource. Keep up the great work!



NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: > 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: between 6.5-8.0 (unless naturally occurring)

Station Name	Table 1. 2014 Average Water Quality Data for GILMORE POND								
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	Total P ug/l	Trans. m		Turb. ntu	pH
						NVS	VS		
Epilimnion	3.37	1.52	40	150.5	8	8.32	8.92	0.43	6.60
Metalimnion				153.4	9			0.71	6.59
Hypolimnion				155.7	10			1.15	6.37
Outlet				161.4	10			0.78	5.87

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

Historical Water Quality Trend Analysis

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	Worsening	Data significantly increasing.	Chlorophyll-a	Stable	Trend not significant; data moderately variable.
pH (epilimnion)	Stable	Trend not significant; data moderately variable.	Transparency	Stable	Trend not significant; data show low variability.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.